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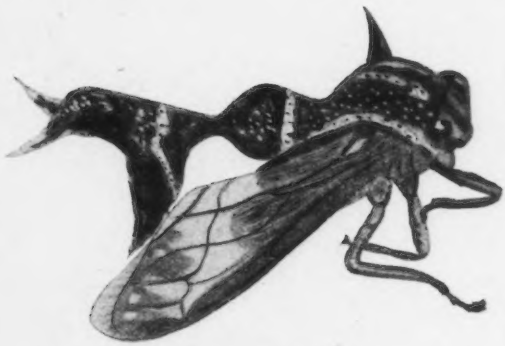
ENTOMOLOGICAL NEWS



Heteronotus vulnerans.

MAY, 1903.

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EXOTIC LEPIDOPTERA

Ernest Swinhoe, 37 Addison Gardens, London W, England

Will correspondents kindly note that I have left Oxford and that in future my address will be as above.

Catalogue No. 12 for 1903 free. The only Dealer's list giving Author's names throughout. As the various species are arranged under their generic names, this list affords an excellent reference for Museums and Collectors. 100 named specimens, first quality, ex Assam., 40 different species in papers, including *P. bootes, evan, gyas*, etc., mailed free on receipt of Postoffice Order, $4.00.

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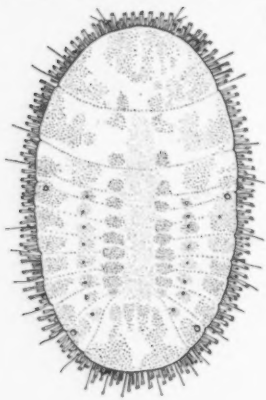

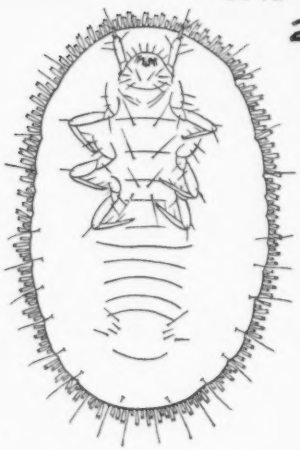

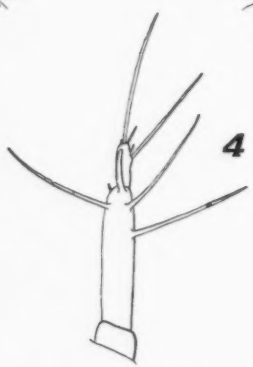

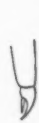

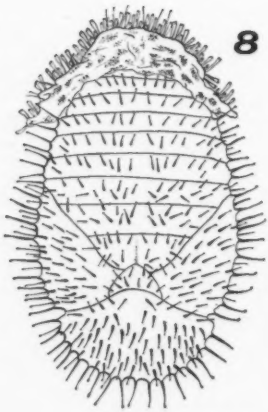

A.W. Morrill del.

CORYLOPHODES MARGINICOLLIS.

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

VOL. XIV. MAY, 1903. No. 4.

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Notes on the Early Stages of Corylophodes Marginicollis Lec.

BY AUSTIN W. MORRILL, B. Sc., Massachusetts Agricultural College, Amherst, Mass.

The adults of this species were found in large numbers on the under surface of the leaves of a European horse-chestnut on the college grounds about the first of September, 1902. On examination a fungus was found in abundance, growing principally on the under surface of the leaves, and upon the mycelium of this the larvæ and adults of the beetle were observed to feed. The fungus was determined by Mr. H. A. Ballou of the Botanical Department of the college, as *Uncinula flexuosa* Pk. Specimens of the adult beetle were sent to the Division of Entomology U. S. Department of Agriculture for determination. In a letter they say of it: "The small black beetle which you send is *Arthrolips marginicollis* Lec., of the family Corylophidæ. The species is extremely common throughout the eastern portions of North America, occurring among de-

caying leaves. The family Corylophidæ is placed in our catalogues near the Coccinellidæ but differs from the latter in many important characters."

The only references to this insect which I have been able to find in literature are the following:

Corylophus marginicollis Le Conte, Proc. Acad. Nat. Sci. Phila., vol. vi, 1852-3, p. 143.

Arthrolips marginicollis Le Conte and Horn, Classification of Coleoptera of N. A., 1883, p. 113.

Corylophodes marginicollis Casey, Jour. N. Y. Ent. Soc., vol. iv, 1900, p. 63.

I have not seen Matthews' "Monograph of the Coleopterous Families Corylophidæ and Sphæriidæ" (London, 1899), where probably mention is also made of this species.

Full grown larva. (Plate VI, Figs. 1-6).—Length 1.5 to 1.9 mm., breadth .84 to 1.12 mm. Form broadly elliptical, flattened, resembling a much magnified crawling larva of a scale insect or of an Aleyrodes. Color gray with brownish markings. Prothorax large, rounded anteriorly, extending in front of the head; tips of antennæ the only parts of the head which can be seen from above when the larva is at rest. When crawling about in search of food, the head may be protruded so that its tip is also visible from above. The thoracic segments above occupy nearly the whole of the anterior half of the body; behind these are nine abdominal segments separated by indistinct sutures. All around the margin are closely set spines of three kinds (Fig. 6): simple, long slender spines; knobbed at the tip; and shorter spines of variable length, at the base thicker than the other two kinds and gradually increasing in thickness toward the tip, bearing many barbs which project outwardly; at the tip is a cup-like depression surrounded by two or more barbs. Of the first kind of spines there are only eight; two on each side near the posterior margin of the prothorax, one on each side near the posterior margin of the mesothorax, and one on each side near the posterior margin of metathorax. Of the second kind there are but six; three on each side of the terminal segment of the abdomen. The third kind occurs in large numbers all around the margin, two hundred and forty-eight in one specimen by actual count. On the dorsal surface are the spiracles, a pair on each of the first eight abdominal segments. These form a row on each side of the abdomen about half way between the lateral margin and the middle line of the body. They are nearly circular in form, and surrounded by a chitinous ring. Near the anterior lateral margin of the second and eighth abdominal segments on each side is a circular opening larger and more conspicuous than the spiracles and like them surrounded by a chitinous ring. The third to eighth abdominal segments inclusive

are all more or less constricted in the middle. The extra space thus gained is occupied by the terminal segment (9th) which in the middle is about one-fifth the entire length of the body. The dorsal surface is marked on each side with three interrupted longitudinal brownish bands which lose their individuality on the first and last segments of the body. One band is a little to one side of the mid-dorsal line; between this and the corresponding band on the opposite side the body is usually somewhat discolored by the contents of the alimentary canal. A second band is between the first and the margin of the body, on a line with the spiracles. The third band is along the margin of the body. These bands examined under high power objectives ($\frac{1}{6}$ in. obj., 1 in. E. P.) show irregular ridges radiating from central points (Fig. 3). At intervals between these ridges are little circular openings through the integument from some of which little balloon-like appendages or sacs protrude—probably sense orgns of some sort—which under low power objectives appear like glistening points.

The ventral surface of the body (Fig. 2) is gray without markings. The head appears to arise from the posterior portion of the ventral part of the prothorax and is capable of considerable protrusion. Seen from below it is roundish, bearing numerous tactile (?) hairs. A minute simple eye, dark red in color, is situated on each side underneath and slightly behind the base of the antennæ. Antennæ composed of three subcylindrical segments, the basal segment short and thick; the middle segment five times as long as the basal one and a little narrower; bearing three long slender spines on its outer half and one shorter stouter one near its tip. The terminal segment which is about one-third as long as the middle segment and is more slender, bears a long slender spine just beyond its middle and another at the tip. In addition to these spines already described minute ones are also found on the last two segments. Mouth parts yellowish in color. Mandibles toothed, (labial or maxillary) minute, bearing tactile hairs. The legs are slender; coxæ, trochanters, femora and tibiæ being well developed and each bearing one or more slender spines, the tarsus consisting of a single segment, apparently in two parts; a stout curved pointed portion and a slender shorter pointed piece arising near its base—the whole resembling a crustacean chela (Fig. 5). Between the legs of the right and left sides of the body are four pairs of long slender spines arising from minute papillæ. The anal opening is situated about one-sixth the length of the body from the caudal margin, is difficult to distinguish, and is surrounded by numerous slender spines of various lengths arising from minute papillæ. The segmentation of the body from below is indistinct except in the middle and at the extreme sides. Near the posterior margins of the third to eighth abdominal segments a short distance in from the edge, on each side, a long slender spine arises from a minute papillæ. These spines are directed outwardly, and when the larva is viewed from above appear to arise from the

margin. A short distance from the caudolateral margin of the last segment, on each side, is a very minute spine corresponding in position to those of the ventral side of the other abdominal segments.

Before pupating the full grown larva rests quietly on a leaf or other object for three or four days, the body appearing to become more rounded in the middle and to pull away from the larval skin at the posterior margin. The skin finally splits near the head, gradually slips back and remains surrounding the posterior end of the pupa which by this time has become firmly attached to the object upon which the insect has been resting.

Pupa (Figs. 7-8). Length 1.5 mm. Width .82 mm. Form, oval, the head end being the more broadly rounded. Color, glistening greenish white; the sides of the abdominal segments are shaded with dark, apparently not due to surface coloring. Body above and on the sides covered with knobbed spines (Fig. 7) of nearly equal size. The metathorax above shows a median groove from front to rear. The ventral surface is smooth and glistening white, naked except for a few slender spines on the sides of the thorax and a few on the abdomen. The legs, antennæ and mouth parts appear as indistinct swellings.

The following is the original description of the adult by Le Conte:

Corylophus marginicollis.—Rotundatus, niger nitidus, thorace basi obtuso producto, lateribus et apice testaceo marginato, elytris punctulatis, pedibus. Long .03.

Middle and Southern States, on leaves.

Body rounded, convex shining black. Thorax semicircular, margin testaceous, base obtusely angulated in the middle, posterior angles obtuse, elytra strongly punctulate, a little rounded at the apex. Legs yellow testaceous.

EXPLANATION OF PLATE VI.

Figures 1, 2 and 8 outlined with Abbe Camera Lucida.

Fig. 1. Dorsum of full grown larva, X 33 diam.

Fig. 2. Venter of full grown larva (somewhat larger specimen), X 33 diam.

Fig. 3. Portion of dorsal surface of full grown larva, X 500 diam.

Fig. 4. Left antenna of full grown larva, from below, X 150 diam.

Fig. 5. Tarsus of full grown larva, X 175 diam.

Fig. 6. Marginal spines from anal segment of full grown larva, X 316 diam.

Fig. 7. Spine from dorsum of pupa, X 300 diam.

Fig. 8. Dorsum of pupa, showing moulted larval skin at caudal (upper) end, X 33 diam.

The Moths (Heterocera) of Eastern Pennsylvania.

By Philip Laurent.

(Continued from page 113.)

GEOMETRINA.

Geometridæ.

Prochœrodes clematata *S. & A.*, rare.
Prochœrodes transversata *Dru.*, common.
Prochœrodes furciferata *Pack.*, rare.
Tetracis lorata *Grt.*, common.
" crocallata *Gn* , common.
Metanema quercivoraria *Gn.*, rare.
" inatomaria *Gn.*, rare.
Drepanodes olyzonaria *Walk.*, rare.
Caberodes confusaria *Hbn.*, common.
Ennomos magnarius *Gn.*, common.
" subsignarius *Hbn.*, "
Azelina hubnerata *Grt.*, rare.
Endropia serrata *Dru.*, rare.
" obtusaria *Hbn.*, rare.
" effectaria *Walk.*, rare.
" bilinearia *Pack.*, rare.
" " var. minoraria *Hulst.*, rare.
" armataria *H S* ,common.
" amœnaria *Gn.*, *rare.*
" vinulentaria *G. & R.*, rare.
" pectinaria *Schif.*, rare.
" hypochraria *H.-S.*, common.
" duaria *Gn.*, rare.
Epirranthis obfirmaria *Hbn.*, rare.
Therina fervidaria *Hbn.*, rare.
" endropiaria *G. & R.*, rare.
Metrocampa margarittata *L.*, rare.
Antepione depontanata *Grt.*, rare.
" sulphurata *Pack.*, rare.
Angerona crocataria *Fabr*,, common.
Microgonia limbaria *Haw.*, rare.
Plagodis keutzingaria *Pack.*, rare.
" fervidaria *H.-S.*, rare.
" phlogosaria *Gn.*, rare.
" alcoolaria *Gn.*, rare.
Probole amicaria *H. S.*, common.
" " var. alienaria, *H. S.*, rare.
Aplodes mimosaria *Gn* , rare.
" " var. latiaria rare.
" inclusaria *Walk.*, rare.
Synchlora glaucaria *Gn.*, common.
" rubrifrontaria *Pack.*, rare.
Nemoria subcroceata *Walk* , rare.
" gratata *Pack.*, common.
" pistaceata *Gn.*, common.
Eucrostis chloroleucaria *Gn.*, common.
Dyspteris abortivaria *H.-S.*, common.
Ephyra pendulinearia *Gn.*, rare.
" cucularia var. myrtaria, *Gn.*, rare.
Acidalia ossulata *Hbn.*, rare.
" punctofimbriata *Pack.*, rare.
" productata *Pack.*, rare.
" insularia *Gn.*, common.
" nivosata *Gn.*, common.
" inductata *Gn.*, common.
" purata *Gn.*, rare.
" ennucleata *Gn.*, common.
" quinquilnearia *Pack.*, rare.
Calothysanis amaturaria *Walk.*, rare.
Calledapteryx dryopterata *Grt.*, rare.
Stegania pustularia *Gn.*, rare.
Gueneria basiata *Walk.*, rare.
Deilinia erythremaria *Gn.*, rare.

Corycia vestaliata *Gn.*, *rare.*
Semiothisa præatomata *Harv.* rare.
" minorata *Pack.*, rare.
" multilineata *Pack.* rare.
" enotata *Gn.*, common.
" granitata *Gn.*, rare.
" ocellinata *Gn.*, rare.
Marmopteryx gibbicostata *Walk.*, rare.
Eufitchia ribearia *Fabr.*, common.
Fidonia notataria *Walk.*, rare.
Hæmatopis grataria *Fabr.*, common.
Caterva catenaria *Cram.*, common.
Aspilates coloraria *Fabr.*, "
Cleora semiclusaria *Walk.*, "
Stenotrachelys approximaria *Hbn,*, rare.
Bronchelia hortaria *Fabr.*, common.
Boarmia pampinaria *Gn.*, common.
" umbrosaria *Gn.*, rare.
" larvaria *Gn.*, rare.
" humaria *Gn.*, rare.
" crepuscularia *Tr.*, common.
Tephrosia canadaria *Gn.*, rare.
" anticaria *Walk.*, rare.
Paraphia subatomaria *Grt.*, rare.
" deplanaria *Gn.*, common.
Biston ursarius *Walk.*, rare.
Eubyia cognataria *Gn.*, common.
" cupidaria *Grt.*, rare.
" quernaria *S. & A.*, rare.
Phigalia strigataria *Minot.*, rare.
Paleacrita vernata *Pack.*, rare.
Anisopteryx pometaria *Harr.* rare.
Heterophleps trigutta *H.-S.*, common.
Heterophleps harveiata *Pack.* rare.
Heliomata cycladata *Walk.*, rare.
Baptria albovittata *Gn.*, rare.
Lobophora atroliturata *Walk.* rare.
" anguilineata *Grt.*, rare.
" limitaria *Walk.*, rare.
Philereme albosignata *Pack.*, rare.
Calocalpe undulata *Linn.* common.
Phibalapteryx latirupta *Walk.*, common.
Phibalapteryx intestinata *Gn.* rare.
Anticlea vasaliata *Gn.*, rare.
Petrophora testata *Linn.*, rare.
" diversilineata *Hbn.* common.
Petrophora atricolorata *G. & R.*, rare.
Rheumaptera brunneicillata *Pack.*, rare.
Rheumaptera fluctuata *Linn.*, rare.
" lacustrata *Gn.*, common.
Rheumaptera hastata *Linn.*, common.
Ochyria ferrugata *Linn.*, rare.
" designata *Hbn.*, rare.
Plemyria fluviata *Hbn.*, common.
" multiferata *Walk.*, rare.
Eupithecia implicata *Walk.*, rare.

(To be continued.)

MR. WILLIAM BEUTENMUELLER, Curator Department of Entomology, Amer. Mus. Nat. Hist., New York, was married to Edna Libbie Hyatt on April 15th.

THE BROOKLYN INSTITUTE has sent Charles Schaeffer and Jacob Doll to Texas to collect insects for the Museum. They started by steamer, Saturday, April 4th, for Galveston, en route to Brownsville. They intend to remain three or four months. Both of these gentlemen are good collectors and they will doubtless find many new and rare insects.—L. H. JOUTEL.

A New Genus of the Orthopterous Subfamily Phaneropterinae.

By James A. G. Rehn.

ALOGOPTERON* n. gen.

A member of the Ephippithytæ, and related to *Polichnodes* Giglio-Tos, but differing in the centrally emarginate fastigium, the peculiar venation, the non-sulcate femora, the heavily spined lower margins of the anterior femora and tibiæ and the spinose sterna.

Fastigium bituberculate; vertex deplanate. Eyes ovate, strongly exserted. Pronotum elongate, the lateral angles rounded; the anterior margin subsinuate, the posterior strongly rounded; lateral lobes much longer than high, the lower margins subrotundate. Tegmina very narrow and elongate, the apex anteriorly rounded; median vein branching from the discoidal vein almost at the very base of the latter, extending unbranched, parallel with and very close to the same for the whole length of the tegmen; discoidal and humeral vein fusing a short distance from the base and apparently not separating again; anterior ulnar vein extending parallel to the sutural margin for almost the whole length of the tegmen, dividing into forks near the apex of the same; transverse veins dividing the surface into rectangles, except at the apex where the disposition becomes more irregular. Wings elongate, much exceeding the tegmina in length, the apex acuminate. Anterior femora and tibiæ bearing on their lower lateral margins series of very long and slightly curved spines, anterior and median femora non-sulcate beneath, the respective tibiæ being rounded above. Posterior femora slender, non-sulcate beneath and supplied with small spines on the apical portion of lower margins; spines of the upper margins of the posterior tibiæ rather small. Ovipositor short, not equalling the pronotum in length, moderately curved, the apical margins very minutely dentate.

Alogopteron carribbeum n. sp.

Type: ♀; Turrialba, Costa Rica. Collected by Schild and Burgdorf. (Coll. U. S. Nat. Mus.)

i. e., unusual wing.

Form very slender. Fastigium with the emargination between the two processes rectangular; vertex rather flattened. Eyes extending forward quite a distance beyond the fastigial processes, short diameter of the eye rather less than the interspace between the two. Basal joint of the antennæ with an obtuse-angulate node on the lower surface, these organs being slender and elongate. Pronotum rounded, elongate, the lateral angles not at all marked, a median sulcation extending over the posterior two-thirds; posterior portion produced and scutellate, lateral lobes with the margin subrotundate, the posterior portion diagonally trimmed. Tegmina very slender, the anterior border slightly emarginate. Wing very much elongate, the apex slightly rounded anteriorly, the area of the radial veins apically with irregular polygonal cells. Spines on the anterior femora three in number on the inner side, four on the outer; on the anterior tibiæ five in number on each margin, decreasing in size distally. Posterior tibiæ with the spines on the superior margins increasing in number distally.

General color pale pea-green, a brilliant line of emerald green decorating the median region of the pronotum. Eyes chestnut, the ovipositor suffused apically with same tint. Body and limbs touched with pale yellowish.

MEASUREMENTS:

Length of body	16.5	mm.
Length of pronotum	3.7	"
Width of pronotum	1.7	"
Length of tegmina	12.2	"
Greatest width of tegmina	.3	"
Length of wing	19.5	"
Length of hind femora	10.5	"
Length of ovipositor	3.5	"

Two specimens of this species from Porto Rico, collected in 1898 by Mr. Busck, were submitted to me by Mr. A. N. Caudell. They are identical with the type, thus giving a considerable range to the species.

Out of Due Season.

BY JOHN H. COOK, Albany, N. Y.

That the season of 1902 was a most remarkable one from the lepidopterist's point of view, I think no one will deny; and that such a season, with its unusual rainfall and generally moderate temperature should have affected appreciably the development of many of our insects, especially of the more susceptible Lepidoptera, is hardly to be wondered at. I have made some notes on a few of the species to be found in the

neighborhood of this city (Albany, N. Y.), which I think will be of interest.

A larva of *Ceratomia amyntor* found on September 8, 1901, pupated two days later in a pail filled with earth. June, July and August (1902), having passed, I decided that the insect was dead and disinterred it. The pupa, however, presented a perfectly healthy appearance and I placed it one of my breeding cages, where it remained without giving any sign of life until December 5th, when I found it rolling merrily over the floor of its place of confinement. Since then it has repeated the performance several times and, unless some untoward circumstance prevents, should emerge during the coming summer.

Another lepidopteron which refused to believe that there was any warm season last year, was brought to the State Museum a short time ago by Mr. R. K. Colville of this city. It was a male *Papilio polyxenes* and emerged on February 11, 1903, from a chrysalis formed by a caterpillar taken in September, 1901. Although the specimen never fully developed, a careful examination thereof failed to reveal the slightest departure from the design or structure of the usual form disclosed from wintering chrysalids.

On August 18, 1902, I discovered three larvæ of *Polygonia comma* (on elm) in the stage following the second moult; the next day another in the stage following the first moult, and on August 23d I found six others in the stage preceeding pupation —these last in quite another locality. The chrysalids formed by these caterpillars disclosed the imagos between September 4th and 27th, and of the nine two only were of the form *harrisii*, six were *dryas*, and the other, a female, a peculiar form intermediate between these recognized varieties and of which I have seen but one other example. That *dryas* has been found among the second brood I am certain, but in many years collecting this is the first instance which has ever come under my personal observation.

On July 26th I took, in my garden, a badly worn female *Polygonia interrogationis umbrosa*, and fastened to one of her hindmost legs by several strands of what apparently was spider thread, were three eggs. These hatched on the 28th

and although one larva died without tasting food, the others were reared to maturity. One emerged on August 27th, the other on August 31st, and both were females and *umbrosa*. This I think is a very unusual occurrence.

I might add that, while the appearance of almost every species due after the first of June, was delayed from one to six weeks, the broods of *Feniseca tarquinius* were thrown into the most hopeless confusion of all. In this locality there are three broods anually appearing at fairly regular intervals; but last season while collecting the larvæ I found on the same day (August 1st) eggs, small, medium sized and full grown caterpillars, chrysalids and butterflies; on August 21st the same state of affairs was noted except that no eggs were found and fewer butterflies, and these all females.

It seems to me that the coming season should be prolific in captures of the unusual, especially among the hibernating individuals of such species of *Polygonia* as appear in distinct seasonal forms.

Agathobanchus Aequatus.

By J. Chester Bradley.

AGATHOBANCHUS Ashmead.

Bánchus Say, Sec. Ed., ii, p. 701.
Agathobanchus Ashmead, Class., Ichneum., p. 97, 1900 (tabulated).

Head transverse, temples narrow; mouth parts very abnormal, the labium prolonged into a long tube reaching to the insertion of the second pair of legs, this is sometimes split in two; antennæ filiform, polyarticulate, the third joint about as long as the fourth and fifth together. Thorax robust, slightly broader than the head, mesonotum without parapsidal furrows; wing with a trapezoidal areolet, disco-cubital nervure not angularly broken, without the stump of a vein, transverse medial nervure in forewings not interstitial with basal, submedian cell slightly longer than median. Abdomen sessile, flattened laterally, broadly truncate posteriorly; ovipositor somewhat exserted.

A. æquatus Say.

Banchus æquatus Say, Sec. Ed., ii, p. 701.
Type of *Agathobanchus*, Ashmead, Class., Ichneum., p. 97, 1900.

Shining black; face, part of legs, ventral abdominal segments, basal half of wings, ring around antennæ and scutellum yellow; remainder of wings fuscous. Length 11–12 mm.

♀ Head shining black, face below antennæ, a short arc above and behind each eye, mouth parts except tips of mandibles brownish yellow, a deeply impressed brown pit and groove on each side of face below the eyes; first three or four joints of antennæ brown, next thirteen yellow, and remainder black; clypeus shallowly emarginate; the labium is prolonged into a long tube, somewhat similar to the structure of the *Bombidæ;* it is in the female specimen split in half apically, and is long enough to reach the insertion of legs. Head sessile, mesothorax dome-shaped,

prominent; thorax entirely polished black, roughened, epimeron somewhat angled carinate on the lower part of its anterior angle; mesonotum, without parapsidal furrows; a short oblong groove or pit on the central posterior portion of epimeron; a fine sparse brown pubescence on the anterior portion of mesothorax the sides of the thorax about the edges of each sclerite, where also a few punctures are mostly found; scutellum gibbous, yellow; propodeum black, polished, not carinate, spiracle on each side thereof circular; wings fuscous, nervures brown, but together with entire wing golden yellow at base, yellow color extending to near the apex of the cubito-discoidal cell and in the marginal to the apex of the stigma, which is long and narrow; areolet large, trapezoidal, second transverse cubital nervure convexly curved; cubitus without a stump of vein, but strongly angled half way between the discoidal and first transverse cubital nervures; a white spot on cubitus between the angle and the first transverse cubital, one on second transverse cubital and two on second recurrent nervure just below cubitus, legs black, tibiæ and tarsi yellow, posterior tibiæ dark at apex, posterior femora extending slightly beyond the tip of the abdomen; posterior and middle tibiæ with two apical spurs, in middle legs the longer spur is about equal to the second tarsal joint, in the posterior equal to third and fourth together; first joint of posterior tarsi longer than second, third and fourth together, second slightly shorter than third and fourth together. Abdomen black, sessile, flattened laterally, broadly truncate at apex, apex of first dorsal and the fourth anterior ventral segments yellow; ovipositor

exserted, shorter than the truncation of the abdomen, slightly shorter than the first joint of the posterior tarsi. Length 12 mm.

♂ Differs from foregoing description of female only in the following points, temples and narrow line between and eyes yellow, antennæ except apical eight or nine segments entirely reddish yellow. Mesothorax not so broad or prominent, a deep red band on each side joined behind, forming a figure similar to the Greek capital letter omega inverted (℧); the anterior angle of epimeron somewhat more strongly carinate; the anterior femora yellow, and also a very small spot in the centre of the propodeum yellow. Abdomen more petiolate, strongly clavate at apex, compressed laterally and not truncate. Length 11 mm.

Riverton, N. J. (♂ September 8, ♀ August 31). Collected by Mr. Charles W. Johnson. Indiana (Say).

As this insect does not seem to be well known, there being no references to it, so far as I know, since Say's original description, except Mr. Ashmead's making it a type of *Agathobanchus*, I have considered it advisable to redescribe it here more fully than Say has done, from the two excellent and beautiful specimens collected by Mr. Johnson—the only ones I have seen. Say does not mention the sex of his type, which is, of course, destroyed. The peculiar structure of the mouth parts makes this insect notable.

Note on Galeruca.

By Chas. Dury, Cincinnati, Ohio.

Twenty-five years ago in the vicinity of this city, I found rather commonly, a *Galeruca* which Dr. Horn identified as *externa* Say. Recently Mr. Schwarz doubted the occurrence of *externa* here. I sent him a specimen and he pronounced it the European *Galeruca tanaceti* Linn. without doubt, and the first record of its occurrence in the U. S. They were taken by sweeping low vegetation in shady places. The most recent date I have is June 3, 1902. A series of 14 specimens pinned in my box which I have collected in Cincinnati, Ohio, Michigan, Colorado, New Mexico and received from California vary in minor details, so that no two are alike, and any of them might fit the description of either *tanaceti* or *externa*. Might the two species be identical?

Notes on Some California Myrmecophiles.

By Charles Thomas Brues.

There have recently come into my hands, through the kindness of Dr. William M. Wheeler, some specimens of interesting myrmecophiles collected and observed by Dr. Harold Heath in California. One of them, a histerid beetle, belonging to the genus *Hetærius* has been previously well known, but I am enabled to record some additional facts concerning it; another, the larva of a syrphid fly is quite different from any of the hitherto described forms of myrmecophilous *Microdon* larvæ, and seems worthy of extended description.

COLEOPTERA.

HISTERIDÆ.

Hetærius tristriatus Horn. (Fig. 1.)

A male and female of this peculiar beetle were collected in a nest of *Formica fusca* L., sub. sp. *subpolita* Mayr.,* at Pacific Grove, Cal., during the early part of April, which is the only season of the year when these insects are to be found. Dr. Heath gives the following short note concerning their actions, "when first observed they were about an inch below the surface of the ground and were being jostled about in the excited mob of ants. To the latter they gave little notice, but rolled or tumbled over each other; and finally when quiet had been restored, remained motionless for ten or fifteen

Fig. 1.

* Wasmann in his Kritisches Verzeichniss der Myrmekophilen und Termitophilen mentions *H. tristriatus* as occurring with *Formica fusca*, var. *subœnescens* Em, in Colorado and with *F. obscuripes* For., in Washington; while Schwarz records it also as living in the nests of *F. schaufussi* at Helena, Montana.

minutes." Schwarz* has observed the ants pick up another species of Hæterius and carry it to a place of safety in the depths of the nest. These beetles are evidently fearless of the ants, as they are well provided with the tufts of yellow glandular hairs characteristic of mymecophilous Coleoptera, besides being almost invulnerable on account of their very hard bodies and retractile legs.

DIPTERA.

SYRPHIDÆ.

A most remarkable dipterous larva was collected in a nest of *Monomorium minutum* Mayr., also at Pacific Grove during April. So much does it resemble the slug-like larvæ of the Syrphid fly, *Microdon*, that I have no hesitancy in considering it as a Syrphid larva. It is, however, so different in many respects from the larvæ of *Microdon* that it is, no doubt, a member of some other allied genus. Larvæ of *Microdon* occurring in as widely separated localities as France,† the United States, Mexico‡ and Paraguay,§ are of an almost identical and extremely peculiar type. The present form departs widely from this, as can be seen from the following description and appended figures.

DESCRIPTION OF THE LARVA. Fig. 2, *a*, *b*, *c*.)

Length 4.75 mm.—Broadly oval, much smaller and broadly convex above, flat below. Ventral surface separated from the dorsal by a delicate carina from which extends a delicate membrane. This membrane is traversed by a series of fine thickenings (see Fig. 1, *a*). At the anterior extremity of the ventral surface is the indistinctly tri-segmented oral papilla, behind which are irregular transverse rows of very small tubercles, interrupted at the middle and at the sides. Just exterior to the membrane is a single series of closely placed dart-shaped fleshy bristles, about 33 in number. Above these are other similar bristles, four on each side and a pair just each side of the anterior extremity. The stigmal protuberance is placed well up upon the posterior surface of the body; conical and sharply constricted at the base. Body elsewhere smooth but not shining. Color in life lemon-yellow; after preservation in alcohol yellowish brown above and fuscous below.

Habitat.—Nest of *Monomorium minutum* Mayr. Pacific Grove, California.

The occurrence of this enormous larva with such an extremely

* *Loc cit.*

† Poujade, Ann. Soc. Ent. France (6), iii, 1883, p. 23, pl. 1.

‡ Wheeler, Psyche, 1901.

§ Sharp, Cambridge Nat. Hist., Vol. vi, p. 502.

small ant as *Monomorium minutum* Mayr., seems very strange and is, perhaps, one of the most striking cases on record of a myrmecophile which is so much longer than the ant with which it makes its abode.

Dr. Heath gives in a letter the following ethological note concerning the relation with the *Monormorium:* "When I pulled over the stone under which this particular colony was concealed, my attention was attracted by a hemispherical light

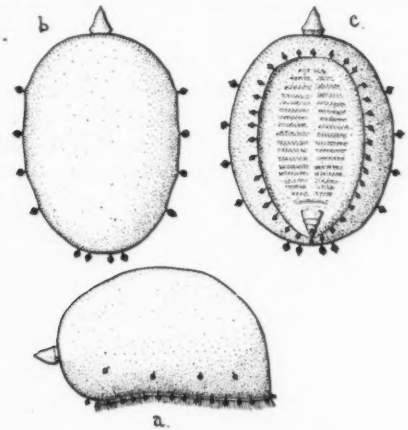

FIG. 2.

lemon-yellow colored mass, which was attached to the underside of the stone on the ceiling of one of the burrows. After the first stages of confusion had passed, and I had shaded the nest from the direct rays of the run, this body was the object of much attention on the part of the ants. For fully half an hour, from two to ten of them continually surrounded it or mounted themselves upon it, moving their antennæ with great rapidity. Occasionally one would attempt to carry it to a place of safety. This performance was continued for fully twenty minutes after all the larvæ had been transferred to a place of safety." From this account it is plainly evident that these huge and brilliantly colored animals live on quite peaceable terms with their diminutive hosts.

List of Dragonflies (Odonata) From North Carolina, Especially From the Vicinity of Raleigh.*

By C. S. Brimley.

The following list is based on specimens collected by the writer during the years 1899–1902, mainly in the valley of Walnut Creek, southeast of Raleigh, while a number of other specimens, including some additional species, were taken on seining trips to Crabtree Creek near its junction with Neuse River (July 10, 1902), and to Neuse River at Poole's bridge near the mouth of Walnut Creek (July 3 and August 18, 1902), both places being about six miles from Raleigh, and about one mile distant from each other, Crabtree entering the Neuse higher up than Walnut. The collecting on these three trips was done by Mr. F. Sherman, Jr., N. C. State Entomologist, and the writer, and also by Mr. C. O. Houghton on the last of the three.

The list probably includes the majority of the species of the suborder Anisoptera to be found at Raleigh; the second suborder, the Zygoptera is poorly represented in the list, little effort having been made to capture or identify members of this group until the latter part of 1902. Mr. Sherman has also furnished me with records of the different species he has taken at Raleigh and in other parts of the State.

Thanks are due to Messrs. R. Martin, Leblanc, France (for whom collecting was done in 1899 and 1900); J. G. Needham, Lake Forest University; R. P. Currie, U. S. National Museum, and J. S. Hine, Ohio State University, for identification of specimens, and to Mr. Sherman for valuable assistance rendered.

[With Mr. Brimley's consent, I have added in brackets [ ] a number of records of North Carolina Odonata known to me. Those which are cited simply as "North Carolina A. N. S." (= collection of Academy of Natural Sciences of Philadelphia), may possibly have been gathered by Morrison, and if so, are presumably from Morganton.—P. P. Calvert].

* This paper was presented at the first annual meeting of the North Carolina Academy of Science, November 29 and 30, 1902.

1. **Progomphus obscurus** (Rambur).

Fairly common in summer in sunny spots along the banks of Walnut Creek usually resting, when not in flight, on bare patches of sand or mud close to the water's edge. A number of nymphs were observed transforming, from about 10 A.M. to 1 P.M. on June 5, 1900, resting on bare patches of sand, or the bare clay of the banks, close to the water's edge but not climbing up plants. This species was also observed at Poole's bridge, July 3, 1902, resting, when not on the wing, on bare rocks projecting above the surface of the water. Occurs from about the end of May to the end of July.

2. **Gomphus notatus** Rambur.

A single male, July 3, 1902, among thick weeds close to the bank of Walnut Creek near Poole's bridge; a female by Sherman at Lumberton, Robeson Co., September 6, 1902.

3. **Gomphus exilis** Selys.

A single male in woods near Walnut Creek, May 2, 1902.

4. **Gomphus sordidus** Hagen.

Our commonest Gomphid; more or less common every year in open woods, and along the borders of woods, in April and May. When flushed from their resting places, the flight is usually a gentle upward rise, followed by a sudden dip downward abruptly taking the insect out of the observer's field of view and thus causing it apparently to vanish. On April 15, 1902, a large number of the exuviæ of full grown nymphs of this species were found along a small stream with a muddy bottom and one was observed transforming. The nymphs had crawled only just beyond the edge of the water to transform.

[5. **Gomphus parvulus** Selys. N. Carolina, A. N. S., 1 ♂].

[6 **Gomphus descriptus** Banks, var. **borealis** Needham. Magnetic City, July 24, 1899, A. P. W. Ley, 1 ♀ identified by Prof. Needham].

[7. **Gomphus consanguis** Selys. N. Carolina, by Morrison, Selys, Comptes Rendus, Soc. Ent. Belg. 1879, p. lxvii].

8 **Dromogomphus spinosus** Selys.

One taken by Sherman, July 3, 1902, at Poole's bridge while resting on a bare rock in the middle of Neuse River, but no others seen; another taken by the writer as it flew up from a

sandbar in Crabtree Creek, July 10, 1902, and others, apparently this species, also seen. Their habits were much like those of *Progomphus obscurus*.

[9. **Ophiogomphus carolinus** Hagen and Needham. 2 ♂, N. Carolina, A. N. S. 1 ♂ 2 ♀, N. Carolina, C. U. lot 35, Mus. Comp Zool.*].

[10. **Tachopteryx thoreyi** Hagen. N. Carolina, A. N. S., 1 ♂].

11. **Gomphæschna furcillata** (Say).

A teneral male taken by myself, April 28, 1899, as it was resting on the trunk of a tree in mixed woods, and another not far from the same place, April 25, 1900. Sherman took an adult male, at Raleigh, June 5, 1901.

12. **Boyeria vinosa** (Say).

Homestead, Graham Co., September 11, 1902, by Sherman. [Magnetic City, July 27, 28, 1899, 1 ♂ 2 ♀, A. P. W. Ley; Blowing Rock, one female nymph, July 8, 1898, J. P. Moore; coll. P. P. C.].

13. **Nasiæschna pentacantha** (Rambur).

One specimen taken flying over a small pool of water, July 1, 1902; it was quite tame compared with other Æschnids, not being frightened away by several unsuccessful sweeps of the net.

14. **Epiæschna heros** (Fabr.)

Rather common in late spring and early summer; very often flies at dusk around houses and among shade trees; occasionally enters houses; has been taken from May 1 to June 28.

15. **Anax junius** (Drury).

Our commonest Æschnid; has been observed from April 22 till late in September, but does not become common till August;

[* Comparison of these 2 ♂ in the A. N. S. with the single ♂, M. C. Z., shows that the latter—presumably the individual from which Prof. Needham's figures (Can. Ent. xxxi, p. 237, ff. 8 and 17) were made—has the extreme tips of the superior appendages broken off, as may also be seen by a careful examination of the specimen, and that the superior appendages are in reality much more sharply pointed in this species than the figures cited show. The 2 ♂, A. N. S., further show variations in the width of the interval between the two branches of the inferior appendage and in the shape of the two branches, as they have the interval much wider and the tip of each branch less deeply emarginated than in the ♂ M. C. Z.—P. P. C.].

flies mostly in the low grounds and not on the uplands like the preceding.

16. **Cordulegaster maculatus** Selys.
A female taken in woods, April 21, 1902.

17. **Cordulegaster diastatops** (Selys).
A male taken in woods, April 12, 1902.

18. **Cordulegaster Sayi**? Selys.
Prof. Needham identifies some Cordulegaster nymphs taken in November, 1901, and January, 1902, as probably belonging to this species.

[19. **Cordulegaster erroneus** Hagen. Morganton, July to September, by Morrison. Selys, Bull. Acad. Belg. (2) xlvi, p. 689. 1878].

20. **Didymops transversa** (Say).
One teneral female taken April 22, 1902; two nymphs caught in the seine at Poole's bridge, August 18, 1902.

21. **Macromia illinoiensis** Walsh.
One specimen taken July 28, 1899, while it was flying over the uplands; one nymph caught in the seine at Poole's bridge, August 18, 1902.

22. **Macromia tæniolata** Rambur.
A male taken on Walnut Creek, July 31, 1902; its actions were similar to those of *Progomphus obscurus* and *Dromogomphus spinosus*, for which latter species it was mistaken before its capture. A female was taken resting on the small limbs of an oak, August 30, 1902, on the uplands. The female has the triangles of all the wings and the internal triangles of the forewings crossed, the male has all of them free from cross-veins.

23. **Tetragoneuria cynosura** (Say).
Tenerals of this species are very common in woods and in sunny spots near woods in the latter end of April; they seem to stay in such situations for a short time after they have attained their full strength; what becomes of them later I cannot say, although I have seen a few flying over water later on. Some idea of the numbers of the tenerals can be gained from the fact that I caught 65 specimens of this and the next species in one morning in April, 1902.

24. **Tetragoneuria semiaquea** (Burmeister).

Occurs at the same time and in the same places as the preceding, but is only about one-third as common. [One male, North Carolina, A. N. S.].

25. **Tetragoneuria complanata** (Rambur).

A single *Tetragoneuria*, taken April 27, 1899, with about twice as much black on the base of the hind wing as in any *T. semiaquea* we have taken was referred to this form by M. Martin.

26. **Somatochlora tenebrosa** (Say).

Rather rare in summer, flying over fields and open ground by the side of small streams and marshes. Flies high and is hard to catch. A dead male was picked up in Crabtree Creek by Sherman, July 10, 1902.

27. **Somatochlora filosa** (Hagen).

A female, Lumberton, Graham Co., September 6, 1902, by Sherman.

28. **Perithemis domitia** (Drury).

Common in June and July. Tenerals fly in upland fields often resting on the flowers of the oxeye daisies; adults fly over pools of standing water.

29. **Sympetrum vicinum** (Hagen).

Common in November, flying mostly in low ground meadows and not over water; one taken also August 21, 1902.

30. **Sympetrum albifrons** (Charpentier).

Rather rare in July and August, tenerals in woods, adults flying over marshes.

[31. **Sympetrum obtrusum** Hagen. Blowing Rock, 1 ♀, July 3, 1898, J. P. Moore; in coll. P. P. C.].

32. **Celithemis ornata** (Rambur).

A male, Four Oaks, Johnston Co., July 29, 1902, and another male at Southern Pines, Moore Co., August 15, 1902, by Sherman.

33. **Celithemis elisa** (Hagen).

A male, Charlotte, Mecklenburg Co., June 9, 1902, by Sherman.

34. **Pachydiplax longipennis** (Burmeister).

Very common in summer, tenerals in woods and adults flying over standing water. This species is most common in May, June and July, and occurs sparingly a month or more later. Taken by Sherman at Clayton, Johnston Co., May 22, 1902.

35. **Mesothemis simplicicollis** (Say).

Rare in grassy low grounds in June and July. Taken by Sherman at Lumberton, Robeson Co., September 6, 1902.

36. **Libellula basalis** Say.

One female taken and several of both sexes seen in Green's rock quarry, August 1, 1902.

37. **Libellula cyanea** Fabr.

Very common in summer; the tenerals occur mostly among broomstraw in woods and fields, the adults fly over marshes and standing water. Occurs from the last of April till July, and sparingly a month later (latest date recorded August 21, 1902.) Taken by Sherman at Clayton, Johnston Co., May 22, 1902.

[38. **Libellula flavida** Ramb. (*plumbea* Uhler). One female, Mitchell Co., July, 1892, by Dr. Henry Skinner. A. N. S.].

39. **Libellula vibrans** Fabr.

Rather common in summer flying over marshes and standing water; the largest and most sluggish of the Libellulas. Occurs from May to August (May 19 to August 21). Taken by Sherman at Beaufort, Carteret Co., August 11, 1902.

40. **Libellula axillena** West.

Common in summer from June to August, flying over standing water; taken by Sherman at Beaufort, August 11, 1902.

41. **Libellula incesta** Hagen.

Two males, July 3, 1902; two more males, August 26, 1902. Indistinguishable on the wing from the preceding.

42. **Libellula semifasciata** Burmeister.

Rather common in spring. Taken by Sherman at Clayton, Johnston Co., May 22, 1902.

43. **Libellula pulchella** (Drury).

Occurs from the latter part of May to the middle or end of September; commonest in August, flies mostly over marshes

and wet meadows. Taken by Sherman at Blowing Rock, Watauga Co., August 29, 1902; Oakdale, Alamance Co., August 22, 1902, and in Durham Co., August, 1902.

44. **Plathemis lydia** (Drury).

Common all the season from April to October, having the longest seasonal range of any of our dragonflies. Tenerals occur on the uplands, adults in meadows and marshes and along streams. Taken by Sherman at Homestead, Graham Co., September 11, 1902, and Charlotte, Mecklenburg Co., April 25, 1902. [Blowing Rock by J. P. Moore, July 8, 1898; in coll. P. P. Calvert.]

45. **Tramea carolina** (L.).

Not very common, occurs in June, July and August; the tenerals fly over uplands and are very hard to catch. In August, 1901, I caught a number flying over a pool of water in Green's rock quarry. Taken by Sherman at Beaufort, August 11, 1902.

46. **Calopteryx maculata** (Beauvois).

Occurs along shady streams from the latter end of May till September. Taken by Sherman at Homestead, Graham Co., September 11, 1902.

47. **Hetærina americana** (Fabr.)

Common on Neuse River at Poole's bridge, July 3 and August 18, 1902; also observed on Crabtree Creek, July 10, 1902. [Asheville, September 12, 1900, by C. C. Adams, *teste* E. B. Williamson].

48. **Hetærina tricolor** (Burmeister).

Rare on Walnut Creek in September.

49. **Lestes rectangularis** Say.

Rather common in wet meadows during portions of the summer, occurs from May till September.

50. **Lestes vigilax** Hagen.

A male, Lumberton, Robeson Co., September 6, 1902, by Sherman.

51. **Argia putrida** (Hagen).

Observed on Neuse River, July 3 and August 18, 1902, also on Crabtree Creek, July 10, 1902. Not observed along Wal-

nut Creek. Taken by Sherman at Smithfield, Johnston Co., July 30, 1902, and at Lumberton, Robeson Co., September 6, 1902.

52. **Argia tibialis** (Rambur).

Found in June, July and August along the edge of streams or pools, flitting along the banks or resting among the bordering vegetation. Poole's bridge, July 3 and August 18, 1902, and on Crabtree, July 10, 1902. Lumberton, Robeson Co., by Sherman, September 6, 1902. [Morganton, 1877, Morrison, 1 ♂ in Mus. Comp. Zool.; 1 ♂ N. Carolina, A. N. S.]

53. **Argia apicalis** (Say).

Occurs at the same times and in the same situations as the preceding species, and was also taken on all three seining trips. Smithfield, Johnston Co., by Sherman, July 30, 1902.

54. **Argia sedula** (Hagen).

Poole's bridge, August 18, 1902, and on Crabtree, July 10, 1902; also by Sherman at Raleigh, July 15, 1902, and Smithfield, Johnston Co., July 30, 1902.

55. **Argia violacea** (Hagen).

Occurs at the same times and in the same places as *A. apicalis* and *tibialis*, but perhaps less common on the larger streams. Not taken at Poole's bridge nor on Crabtree. Taken by Sherman at Charlotte, Mecklenburg Co., June 9, 1902.

[56. **Argia bipunctulata** (Hagen). N. Carolina, Morrison, 6 ♂ 7 ♀ in Mus. Comp. Zool.].

57. **Erythromma conditum** Hagen.

Rather common in April and May, tenerals in woods, adults in marshes.

58. **Anomalagrion hastatum** (Say).

May 15 and June 22, 1899; two females taken in August, 1902.

59. **Nehalennia posita** (Hagen).

Three males, August, 1902, taken in marshes.

60. **Ischnura ramburi** Selys.

Beaufort, Carteret Co., August 11, 1902, by Sherman.

ENTOMOLOGICAL NEWS.

[The Conductors of ENTOMOLOGICAL NEWS solicit and will thankfully receive items of news likely to interest its readers from any source. The author's name will be given in each case, for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and, as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for a certain issue. Twenty-five "extras," without change in form, will be given free, when they are wanted; and this should be so stated on the MS., along with the number desired. The receipt of all papers will be acknowledged.—ED.

PHILADELPHIA, PA., MAY, 1903.

THE advent of the collecting season is always a time of particular interest and looked forward to with pleasure by all entomologists. Now that active work is under way there are several things that occur to us. How many are there who do not have accurate data on their specimens? There should not be a single person neglecting this most important rule. The use of accurate data was one of the very greatest entomological events. How many persons are allowing their collection to be converted into *Anthrenus* and *Dermestes?* Modern boxes and modern methods are the key-note for the prevention of this trouble. How many of us are collecting rubbed and damaged specimens? There is much room for improvement in this matter. Those collecting in the mountainous parts of the West should put the altitude on each specimen taken. This is not necessary when taken at named places of known or ascertainable altitude. Don't forget to add some fact to what is already known in entomology.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

MR. WM. T. DAVIS has published (Proc. Nat. Sci. Ass., Staten Island, viii, No. 3, Feb. 9, 1901) a record of the occurrence of *Lestes eurinus* Say in Staten Island. This species may therefore be added to the New Jersey list of Odonata.—P. P. C.

COBWEBS FIGURE IN MURDER TRIAL.—In the trial at David City, Neb., recently, of Mrs. Harvey Lillie, charged with the murder of her husband, the theory of the defense that a burglar killed Harvey Lillie was given a hard blow. The State presented ex-Sheriff Derby, who testified that he examined the keyhole of the lock alleged to have been forced by the burglar. The lock and keyhole were filled with cobwebs and dust on the morning following the murder.—*Newspaper.*

KIEFFERIELLA, a new name for *Kiefferia* Ashmead. In the last number of Psyche, I established a genus of Figitids under the name *Kiefferia* which I find is preoccupied in the Diptera. I propose therefore the name *Kiefferiella* in place.—WM. H. ASHMEAD.

ODONATA OF NEW JERSEY.—In looking over the current popular magazines I stumbled upon a recognizable figure of a nymph of *Hagenius brevistylus*, and a note which gives a new New Jersey locality—Wildwood Lake, P. O. Franklin Furnace. This was in the February *St. Nicholas*, p. 364. The editorial answer to the inquiry of the correspondent contained this remarkable contribution to the confusion of the terminology of the immature stages of insects: "The full grown dragonfly nymph changes its form from a slender creature to a broad, flat one, that has but little, if any, resemblance to the slender-bodied larva or to the adult." I am afraid I do not understand this. I suppose it is an entomological fragment, dressed up (or down) into that "correct literary form" which is the first requisite of a popular magazine, that expresses by suggestion, and which is freer to suggest when unhampered by facts. —JAMES G. NEEDHAM, Lake Forest, Illinois.

"NOTES ON A [JAPANESE] PARASITIC MOTH," U. Nawa, Gifu, Japan. —In the number of the *Insect World*, issued January 15, 1903 (vol. vii, No. 1), U. Nawa publishes in English an interesting account under the heading, "Notes on a Parasitic Moth." He states that this moth is parasitic on *Pomponia japonensis*, *P. maculaticollis*, and *Graptopsaltria calorata* (Cicadidæ). He also mentions closely allied specimens on *Ricania japonica*, but neither species has been determined, nor is he certain whether they are distinct from each other. The life habits are given, and each form described, and the moth, its antennæ, wings, larva, pupa and cocoon, together with two of the parasitized hosts are figured in color.

This publication, now running in its seventh volume and usually printed entirely in Japanese, bears excellent witness to the scientific industry and attainments of that race. It is issued by that energetic worker, Y. Nawa, from his laboratories in Gifu, and one regrets in looking at its tempting pages and interesting illustrations, that he is not familiar with all languages.—J. CHESTER BRADLEY.

ON *Cystineura floridana*, Strecker.—In Lep. Rhop. Heter. suppl. No. 3, p 24, 1900, Strecker described a *Cystineura* from Florida, to which he gave the name *floridana*.

Careful study of the species leads the writer to the opinion that this species is the same as *C. cana*, of Erichson.

In the description of *C. cana*, Erichson says that it is "very similar in form and marking to the Brazilian *C. hypermnestra*, the upper sides of the wings especially so, with the male more brownish gray."

A specimen of *C. cana*, identified by Strecker, in the writer's collection, is identical with *C. floridana*. Examination of specimens of *C. hypermnestra*, identified by Staudinger, show the close relationship with *C. cana*, in so much so, that if the specimens were brownish gray, they would correspond to the description of *C. cana*, by Erichson.

If, therefore, Strecker's identification of the writer's *C. cana* is correct and that of Staudinger for *C. hypermnestra* is correct and the description of *C. cana*, by Erichson exactly answers that of *C. floridana*, then it seems clear that *C. floridana* falls naturally into the synonymy of *C. cana*.—LEVI W. MENGEL, Reading, Pa.

SPIDERS AS ENEMIES OF DRAGONFLIES.—[The suggestion made in the February NEWS, page 34, on this subject, has called forth the following remarks]. As to the possibility of there being some relation between tenerals in spider's webs and scarcity of imagoes, I doubt if the spiders are a very important factor. That is, in the boat house possibly, a considerable percentage of emerging species were captured, but the total number emerging in the boat house was relatively small to the total number emerging under more favorable conditions (no spiders) elsewhere. In the genus *Gomphus*, on several occasions, I have found apparent scarcity of imagoes due to the fact that they frequented unsuspected spots. For example, once in Tennessee I spent the day along the Cumberland. The river had been rising and falling so all exposed mud banks were wet and sticky. Up these mud banks nymphs of *G. vastus* had crawled and were crawling in great numbers. Many became so coated with mud that, this drying, they failed to emerge. Occasionally very recent tenerals would be shaken from bushes or grasses, but no imagoes were seen flying freely about during the day. That afternoon, as I was going home, about half a mile from the river, on a thinly wooded hillside, with a western exposure, bright in the light of the low sun, I found *vastus* literally by hundreds. They were abundant in a restricted area—possibly 100 yards long by 50 yards wide. I have had a somewhat similar experience with *G. crassus*. A friend of mine found *Cordulegaster* common in a ravine; a few days later not one was to be seen. *Dromogomphus spoliatus*, along the old canal-feeder at Ft. Wayne during the middle of an August day, may be very abundant, but they are not to be found at 8 A. M. and 5 P. M.—they have completely disappeared. You have noticed how *Æschna* and *Anax* will be found one day in flocks over fields and the next day not one can be seen. Moreover, in Indiana lakes I believe that the life of the nymph is as precarious and as full of vicissitudes as the life of the imago, and a wholesale destruction of tenerals would hardly permit of the balance

being maintained. I do not mean that many imagoes are not destroyed, but I do not believe that a comparison of the number of exuviæ seen with the number of imagoes seen gives us a correct idea of the number of imagoes surviving.

In Tennessee nymphs of *Epiæschna heros* were very abundant in a ditch where I collected, but I never saw even a single imago. On the other hand in adjoining swamps three species of *Tramea* were sporting by hundreds as imagoes, and I found during an entire spring only one exuvia. *Tachopteryx thoreyi* is known as a nymph by only the one specimen taken by Atkinson, though Graf has searched diligently for others, but Graf, Atkinson and myself have taken numbers of imagoes. I am afraid in the case of *Neurocordulia obsoleta* our ignorance is more responsible than the spiders for the few imagoes known. And I believe the same is true of *Ophiogomphus*.

In a carefully explored region, where observations have been made during all seasons for a period of years, when the habits and requirements of nymphal life necessitate a condition inconspicuous to us, and the habits and requirements of imaginal life permit conditions not inconspicuous to us, then our collections are filled with imagoes, while nymphs are rare; and in the same locality, but under exactly opposite conditions, we have many nymphs and few imagoes.

Then again, explained in the same terms, imagoes and nymphs of a species may be common, or imagoes and nymphs may both be rare, though I do not mean to say that all species are equally abundant or approximately so, and that we have only to discover the habitat of a rarity to obtain it in numbers. Doubtless the new *Somatochlora provocans* is rarer than some of the *Libellulas*, for example, but doubtless also, it is relatively more abundant than the observations hitherto made would indicate.—E. B. WILLIAMSON, Bluffton, Indiana, Feb., 1903.

While admitting the justness of Mr. Williamson's criticisms in a general way, there are several facts to be pointed out which seem to support the idea suggested, viz.: that spiders may be an important factor in diminishing the numbers of dragonflies. Thus we also saw living spiders of the same genus [*Dolomedes*] at other points on Lake Hopatcong, running over the stones and the small wooden piers so common on the shores. The significance of the boathouse observations is this: the shelter there afforded protected the spiders' webs and exuviæ, the remains and exuviæ of the dragonflies, from destruction by the weather and so preserved a record of events similar to those which doubtless took place outside the boathouse, but of which no trace remained at the time of our visit. I do not deny that the causes cited by Mr. Williamson are also powerful agents in decreasing the Odonata, but I venture to suggest that destruction by spiders is a factor whose importance deserves investigation. The whole matter of the "vital statistics" of insects is one about which we have few exact data.

In this connection it may be *a propos* to record an unpublished observation. On the 18th of August, 1900, I saw that many spiders (*Epeira stellata* Hentz) had woven orb-like webs, 4-6 inches in diameter, in the grass and sedges bordering a shallow arm of Mecox Bay, south of Bridgehampton, Long Island, N. Y. Within the length of one-tenth of a mile, I found four of these webs containing each a single dragonfly and one web containing two. The insects were *Enallagma durum* and *E. civile*, fully colored, dead, more or less enshrouded in silk, and some partly eaten.—PHILIP P. CALVERT.

Doings of Societies.

The association known as "The Pacific Northwest Economic Entomologists, met in Spokane, Wash., on February 3, 4, and 5. The experiment station entomologists of Montana, Washington, California and Idaho, were present, namely, R. C. Cooley, C. V. Piper, C. W. Woodworth and J. M. Aldrich. Professor A. B. Cordley, of the Oregon station, was detained at home, otherwise the representation would have been complete for the territory covered.

Reports were handed in on topics that had been selected for comparative work one year ago; they covered some phases of the life of the codling moth, with the subject of number and time of sprayings. The subject of co-operative work for next year was extensively discussed, and Professor Woodworth was made a committe to propose a definite plan to the other members in the near future.

In the discussion of insects of the year, Professor Cooley described the spread of the codling moth in Montana. He had found the cocoons abundantly in freight cars, by which medium they might be transported almost any distance even after the apples had been taken out. Since last year he had had further assurances of the presence of the plum curculio in the Bitter Root valley, west of the continental divide, but had not yet seen the insect there.

Professor Piper gave an abstract of a new bulletin on the sulphur, lime and salt wash. Extensive experimentation had convinced him that one pound of lime, one pound of sulphur and four gallons of water, or in that proportion, gave an absolutely effective winter spray. He had no difficulty in killing

100 per cent. of the scale at one application on a large commercial orchard. It need not be applied hot.

Professor Aldrich read the manuscript of a forthcoming bulletin on the codling moth. He had found three broods of the moth at Lewiston, Idaho, but only two elsewhere. In the higher altitudes, where the moth is not numerous, he had not been successful in controlling it with one or two sprays; although two had been better than one, still some worms survived. Paris green had given decidedly better results than arsenate of lead in an extensive test.

The existence of Phylloxera on grapes in North Idaho having been mentioned, Prof. Woodworth stated that in his opinion the winged form of the insect is produced but rarely in California, perhaps not oftener than once in ten years.

The meeting being held in connection with that of the Northwestern Fruit Growers' Association, the entomologists appeared on the program of the latter in the following addresses:

The Prevention of Small Losses by Insects, R. C. Cooley.

The Lime, Salt and Sulphur Wash, C. V. Piper.

The Peach Worm, C. W. Woodworth.

The Codling Moth in High Altitudes, J. M. Aldrich.

Before adjournment, the entomologists chose Prof. Cordley chairman of the organization for the ensuing year, and voted to meet next time in Corvallis, Oregon.

The foregoing notes cover only a few of the interesting matters that were discussed in the meeting. J. M. A.

At the meeting of the Feldman Collecting Social held on March 18th at the residence of Mr. H. W. Wenzel, 1523 South 13th Street, Philadelphia, twelve persons were present.

A letter from Mr. A. Busck was read and ordered filed.

Mr. Bland exhibited specimens of *Polistes*. These were taken recently flying around a lamp and also in his bedroom.

Prof. Smith spoke of the species of *Leucania*. He had recently been over the collection at Cambridge and found Morrison's types of *texana*. The specimens were originally described as being a variety of *phragmitidicola*; but, as a matter of fact, bear no relation to that species. Mr. Grote subse-

quently described this same form as *ligata*. Mr. Grote's name must sink as a synonym in favor of Mr. Morrison's. In looking over the collection of Mr. Philip Laurent he found a series of eight or more specimens of *L. flabilis* of which up to that time he had known the types only. The specimens were taken at Anglesea at sugar, and one of them was so like a typical *ligata*, that had the example come from Texas, there would have been no hesitation in giving it that name. The series does prove positively that *flabilis* is the same as *rimosa*, some of the examples agreeing perfectly with a specimen received from Dr. Thaxter and taken in Maine. It is more than likely that these three names will eventually have to be regarded as belonging to one species. Another interesting species seen in Mr. Laurent's collection is *extincta*, also taken at Anglesea, and which up to that time he had seen from the Newark district only.

Mr. Haimbach described a card index for recording duplicates.

WM. R. REINICK,
Secretary Pro tem.

A meeting of the Entomological Section of the Academy of Natural Sciences of Philadelphia, was held March 26th, Mr. C. Few Seiss presiding. Fourteen persons were present. Dr. Calvert exhibited the apparatus with which he labels specimens with generic and specific names. Metallic type is used and set up in a small holder made for rubber stamps. A printed form is used, on which is the name of the determiner; the name of the insect is added as above indicated. This scheme was devised for the Biologia Centrali-America collection of Odonata, as it will be distributed into various museums, so that it becomes necessary to accurately label each specimen. Mr. Hornig mentioned that Mr. Ilg had tried to keep *cynthia* and *luna* eggs alive through the winter by the use of cold, but they all died. Mr. Hornig asked if it would be possible to keep over winter eggs of species that normally live during that period in the chrysalis.

HENRY SKINNER, *Recorder.*

A regular meeting of the Entomological Section of the Chicago Academy of Sciences, (Chicago Entomological Society) was held in the John Crerar Library, Thursday evening, March 20th, 1903. Seven members present. Mr. Healy occupied the chair in the absence of the chairman.

Mr. Higley, on behalf of the Academy, reported that the By-laws of the Section had been passed upon at the last meeting, and had been accepted without amendments, and placed on record as By-laws of the Section.

Mr. W. L. Tower was scheduled for a talk on metamorphoses, but did not put in an appearance. Informal discussion, therefore, took the place of the regular program.

Mr. Higley described the interesting study and collecting trips which the Academy members had taken in previous years, and spoke of the prospects of similar excursions for the coming season. Several members of the section expressed a desire to participate. As is usual in the early spring meetings, many of the members had accounts to relate of the appearance of forerunners of the coming season.

The subject of a field day for the Section was broached, but no decision reached because of the early date.

JOHN COMSTOCK, *Recorder.*

The seventh regular quarterly meeting of the Pacific Coast Entomological Society was held on the evening of February 28th, at the residence of Mr. J. C. Huguenin, 1840 Fifteenth Street, San Francisco.

President Fuchs in the chair.

Twelve members responded to roll call. Six new members were elected. Dr. E. C. Van Dyke, acting as President *pro tempore*, Mr. Fuchs exhibited a box of native and exotic *Plusiotis*, with remarks upon their structural differences, life histories and distribution. Mr. L. E. Ricksecker recalled the time when James Behrens brought the first specimen to California from Arizona.

Dr. E. C. Van Dyke exhibited a box of American *Lucanidæ*, with remarks upon the several genera, and other biological facts of great interest relative to their life histories and distri-

bution; Mr. Fordyce Grinnell exhibited maps illustrating the Faunal Areas and Life Zones of California; Mr. F. W. Nunenmacher a box of *Coccinellidæ* from Ceylon; Mr. James Cottle a series of *Melitæa chalcedon* of six varieties; Mr. Ralph Hopping a box of Coleoptera collected in Tulare Co., among which were such rare species as *Acmæodera plagiaticauda*, ♀ ♀ of *Trachykele lecontei*, *Cychrus subtilis*, *Corymbites mirabilis*, and a series of *Chariessa* demonstrating that *Ch. dichroa* with black legs and *Ch. elegans* with red legs are but color varieties of the same species, also *Perothops witticki*; Mr. Edw. Ehrhorn a box of Coleoptera from Bolivia, S. A.; Mr. O. N. Sanford presented to the Society a collection of Coleoptera from San Diego Co., California; Mr. W. T. Clark then presented Prof. Woodworth's "List of the Insects of California," Part 1st, with remarks upon the same; Dr. Blaisdell stated that he was working on a revision of the *Blaptini* of the U. S., and asked the members to aid in obtaining the individuals of the several species from the different regions West of the Mississippi.

Then followed an enthusiastic discussion of the many interesting facts presented during the meeting.

Refreshments and adjournment.

F. E. BLAISDELL, M. D., *Secretary*.

The April meeting of the Newark Entomological Society was held on the 12th inst., with President Angelman in the chair, and eleven members present.

A motion was made and carried to hold meetings the second Saturday of each month at 8 P. M. during summer. It was further agreed to have a field meeting May 10th, at Paterson.

Mr. Bischoff reported the capture of *Calocampa cineritia* (Lep.) March 15th, also *Leptotrachelus dorsalis* (Col.) taken plentifully between the bottom leaves of Cattails, March and April. Also *Lebia pulchella* and a pair of *Hister plenipes* at Bellville March 16th.

Messrs. Geo. J. Keller and Joseph Maurus were elected members. After that adjournment.

OTTO BUCHHOLZ, *Secretary*.

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Aphides.—I desire to obtain living aphides or plant lice. Can give named or unnamed Massachusetts insects of any order except Lepidoptera in exchange. C. T. Brues, Zoological Laboratory, Columbia University, New York City.

Wanted.—Cerambycidæ (Longicorns) of the Americas. State number, price and locality. Fred. C. Bowditch, 164 Rawson Rd., Norfolk Co., Mass.

Coccids and Bees.—Correspondents are requested not to send me specimens for identification without first asking permission. My time is very limited, and I cannot work up all sorts of miscellaneous material. —T. D. A. Cockerell, East Las Vegas, N. M.

Pupæ Exchange.—Crysalids of H. Maia and others; also cocoons to exchange for other native pupæ and cocoons. W. T. Buxton, 152 Walnut St., Somerville, Mass.

Wanted —Cocoons *Attacus angulifera*, *ceanothi*, *gloveri*, *A. luna*, *E. imperialis*, to exchange for butterflies and moths. *Catocala* in papers from Illinois.—Adolf Mares, 1671 W. 23d St., Chicago, Ill.

Tortricidæ, Tineidæ and **Pyralidæ** —I will identify specimens of these subfamilies, from all N. Am. localities, for privilege of examination and records. Genera and specific names per Dyar's Catalogue. Will also exchange.—W. D. Kearfoot, 114 Liberty St., New York, N. Y.

Diptera.—*Rhamphomyia* of the world wanted. Will exchange for Texas or Illinois insects (not Lepidoptera).—A. L. Melander, The University of Chicago.

Wanted, by purchase or exchange, photographic prints and lantern slides illustrative of insect life.—W. L. W. Field, Milton, Mass.

Wanted —December, 1899, Entomological News. Address F. W. Friday, 17 Grace St., Pittsburg, Pa.

Wanted.—*Catocala* and *Sphinx* of the Northwest and Southwest in exchange for other native exotic and European butterflies and moths. Send list to Chas. F. Timm, 131 Ralph St., Brooklyn, N. Y.

Exchanges solicited in moths, butterflies of N. America. Catocalas preferred. Send lists to Jos. H. Reading, 775 N. Rockwell St., Chicago, Illinois

Lepidoptera from all parts of the world to exchange for species not in my collection.—Frank Haimbach, No. 1309 Allegheny Avenue, Philadelphia, Pa., U. S. A.

North American Butterflies wanted in exchange for Lepidoptera of Southern California.—P. H. Hart, Pasadena, Cal.

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Lepidoptera.—Fertile eggs of *Argynnis diana* wanted —John Ruston, 10 Carlton Road, Workrop, Nottingamshire, England.

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Moths of Pennsylvania and New Jersey. The undersigned will give good exchange in cash or specimens for moths of Pennsylvania and New Jersey that are new to his collection. Send list of rare species only.—Philip Laurent, 31 East Mt. Airy Ave., Philadelphia, Pa.

Wanted.—Sphegidæ of North America, Mexico and the West Indies (as included in Cresson's Synopsis) for study in connection with a revision of the group. Material sent will be returned named as far as possible.—H. T. Fernald, Amherst, Mass

I will give Lepidoptera, publications or cash, for Smith's "Monograph of the Sphingids," published in Vol. xv, Trans. Ent. Soc., Acad. Nat Sciences, 1888.—H. H. Newcomb, 35 Court St., Boston.

Hymenoptera.—Will be pleased to send duplicates in return for identifications.—Charles Stevenson, 906 St. Urbain Street, Montreal, Canada.

Wanted for cash, fertile ova of *regalis, imperialis, triplogon modesta, Augulifera.*—H. M. Peinze, Northboro, Mass.

Will collect in all orders, insects of South East New England for Lepidoptera of North America.—L W. Tilden, Box 54, New Bedford, Mass.

Wanted.—Fertile eggs, *Cith. regalis*, also all kinds *Thecla* and *Lycaena* for Lepidoptera from here.—H. M. Boyer, 220 Hudson Street, Reading, Pa.

Wanted.—Life histories in all orders of insects. Will pay cash or give exchange for same. Write what you have, and state lowest cash price.—Denton Bros., Wellesley, Mass.

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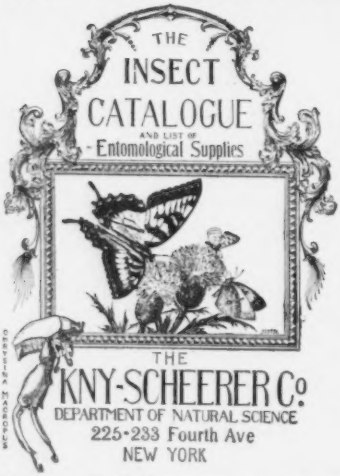

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